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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,022	03/02/2004	Ta-Lee Yu	TS2000068BE	1284

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EXAMINER	
MONDT, JOHANNES P	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/791,022	YU, TA-LEE	
	Examiner	Art Unit	
	Johannes P. Mondt	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/15/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The examiner has considered the items listed on the Information Disclosure Statement (IDS) filed 4/15/04. With regard to the Non-Patent literature item Chen et al listed under "Other Documents", a readable copy has been provided by the examiner and placed in the file. A signed copy of Form PTO-1449 is included with this office action, but an annotation is inserted to correctly identify said Non-Patent Literature item.

Specification

The disclosure is objected to because of the following informalities: throughout the specification the wording "dopant" should be replaced by "dopant"; also, the wording "IIIE" on line 21 of page should be replaced by "34th Annual Proceedings of the IEEE International Symposium on Reliability Physics, pages 327-232, 1996". Appropriate correction is required.

Claim Objections

1. ***Claims 32-38*** are objected to because of the following informalities: the wording "dopant" should be replaced by "dopant" (claim 32, lines 4, 6, 7, 12 and 15; claim 33, line 2, 4 and 5). Appropriate correction is required.
2. ***Claims 32-38*** are objected to because of the following informalities: the wording "regions:" (final line of claim 32) should be replaced by: "regions.". Appropriate correction is required.

3. ***Claim 33*** is objected to because of the following informalities: the wording: "said plurality of spaced third regions of n type dopant" should be replaced by: "said plurality of third regions". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. ***Claim 34*** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the adjective "alternating" in "alternating array" does not pertain to any feature of an array as such but instead requires specification of at least two different arrays to which alternating can be defined.

2. ***Claim 34*** recites the limitation "said laterally spaced pluralities of third emitter regions" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.
3. ***Claim 35*** recites the limitation "said collector regions" in line 1. There is insufficient antecedent basis for this limitation in the claim.
4. ***Claim 36*** recites the limitation "said array" in line 1. There is insufficient antecedent basis for this limitation in the claim.
5. Regarding ***claim 37***, the phrase "box like" renders the claim indefinite because the claim includes elements not actually disclosed (those

encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

6. ***Claim 38*** recites the limitation "said plurality of second semiconductor base region electrical contact conductor elements" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.
7. ***Claim 38*** recites the limitation "said third semiconductor emitter region base region electrical contact conductor elements" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. ***Claims 32-34*** are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (5,850,095) (made of record by Applicant in IDS filed).

Chen et al teach an integrated vertical multiple npn transistor ESD protection structure on a semiconductor substrate 42 (col. 3, l. 35-36) (title and abstract; Figure 4 and cols. 2-4), functionally connected between an integrated circuit input or output pin 34 (col. 3, l. 5) and ground (indicated in Figure 4) which will prevent electrostatic discharge damage to said integrated circuit comprising;

a first semiconductor layer 44 (col. 3, l. 35) having a first conductivity dopant type (N-type);

a second semiconductor layer 46 (col. 3, l. 40-42) overlying said first semiconductor layer, having a similar conductivity type as said first layer, but a different dopant concentration (N instead of N+);

a third semiconductor layer 62 (col. 3, l. 62) having a second conductivity dopant type opposite that of said first semiconductor layer (P-type), disposed in overlying relation to said second semiconductor layer (cf. Fig. 4);

a plurality of first regions 50 of said first conductivity type (N-type) electrically connecting with said first semiconductor layer, having a top element 58 making electrical contact to said first regions and said first semiconductor layer (col. 3, l. 55-59);

a plurality of second regions 64 (col. 3, l. 63) of said second conductivity dopant type (P-type) laterally spaced from said first regions (cf. Fig. 4), being electrically connected to said third semiconductor layer having a top element 76 making electrical contact to said second regions and said second semiconductor layer (see Figure 4);

a plurality of third regions 66 of said first semiconductor layer conductivity dopant type (N-type) laterally spaced and interposed between said second regions.

In conclusion, Chen et al anticipate claim 32.

On claim 33: the plurality of first regions 50 together with the associated connected first semiconductor layer are with n dopant and form multiple collector elements of a bipolar transistor in which the bases are formed by said third conductivity

layer 62 and associated said plurality of second regions of p dopant, and by which multiple emitter elements are formed by said plurality of laterally spaced third regions 66 of n type dopant (cf. Figure 4: N.B. 65 are the emitter contacts (col. 3, l. 64)).

On claim 34: This rejection is offered subject to the indefiniteness noted under 35 U.S.C. 112, second paragraph, above. Examiner will here assume that the alternation is between emitter regions and the material of the layer ("third semiconductor layer") 62 in which said emitter regions are located. Then the further limitation so interpreted is met by Chen et al because laterally spaced pluralities of emitter regions 66 are arranged in an alternating array within said third semiconductor base layer, with "N" number of emitter regions whereby "N" corresponds to (i.e., defines) the number of multiple bipolar transistors in an electrically parallel transistor array that comprise said ESD protection structure.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Canclini (5,341,005) (made of record by Applicant in IDS), showing inter alia horizontal contact conductor stripes for collector, emitter and base regions (front figure); Beigel (cols. 2-5, title, abstract and Figure 3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
September 18, 2005

Patent Examiner:

Johannes Mondt (art Unit: 2826).